

Appendix VII

Camden County Board of Education


JOHN B. DUNN, Ed.D.
Interim Superintendent

174 North 343
Camden, North Carolina 27921-7549
Telephone (252) 335-0831 • Fax (252) 331-2300

BOARD MEMBERS
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Brian R. Lannon, Vice Chair
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To: Dan Porter
Planning Director

From: John B. Dunn
Interim Superintendent 

Date: September 9, 2004

RE: Long Range Facility Plans As Discussed

Attached you will find a copy of the schematic design for the intermediate school (grades 3-5), along with the estimate of development budget. This is the final phase in our long range facility plan.

Please feel free to call me should any questions arise.

/jb
attachments

Camden County—Demographic and Enrollment Projections. (4 Scenarios)

Four scenarios projecting future development in Camden County have been prepared. Each scenario projects population, housing, and school enrollment out to 2010 and 2020. A summary of each development scenario is noted below.

- ❖ Scenario 1: Development Ceiling Based on North Carolina 2020 Population Projections. Scenario 1 projects future development based on the North Carolina State Data Center population projection for 2020, which indicates that the County's 2020 population will be approximately 9,500 residents in 2020. This population projection figure is used in the scenario to constrain or limit growth during the 2004-2016 period to match the State's 2020 projection.

Since the 2020 population sets a ceiling for growth, Scenario 1 is the most conservative of the four scenarios. It assumes that growth will be fairly strong in the near term, but will gradually taper off as the year 2020 approaches. The Scenario 1 projects an additional 504 housing units over the next 16 years, which is less than the 675 units that are proposed under the 14 subdivision plans currently under consideration (or approved) by the County.

- ❖ Scenario 2: Linear Trend Extrapolation. Scenario 2 uses a least square analysis to “fit a line” that extrapolates a future growth trend based on the building permit data from 2000 through 2004. This scenario assumes that the average number of dwelling units constructed per year during the 2000 to 2004 period will continue out to the year 2020. Based on building permit data from the County, there has been—on average—163 new housing units per year in the County since 2000.

This scenario projects 6,200 units in 2020 or over 2,500 additional units over the study period. The 675 units presently under consideration would be absorbed before 2010.

- ❖ Scenario 3: Annual Growth Rate Projection. Scenario 3 projects the annual number of future residential units based on the annual growth rate during the 2000 to 2004 period. During this time, the number of housing units in the County increased an average of 5.5 percent per year. Applying this growth rate to the 2004 estimate, the scenario assumes an additional 199 units in 2005. This numerical figure of 199 units was applied to future years arrive at the annual development projections.

This scenario projects 6,811 units in 2020 or over 3,000 additional units over the study period. The 675 units presently under consideration would be absorbed in less than four years.

- ❖ Scenario 4: Exponential Growth Rate Projection. Scenario 4 assumes that the County's annual housing growth rate for the 2000 to 2004 period will continue out to 2020, resulting in an exponential increase in development due to the compounding annual growth rate. Under this scenario, the number of housing units in the County will more than double to 8,030 units by 2020.

Housing Unit Projection Alternatives

Camden County, North Carolina

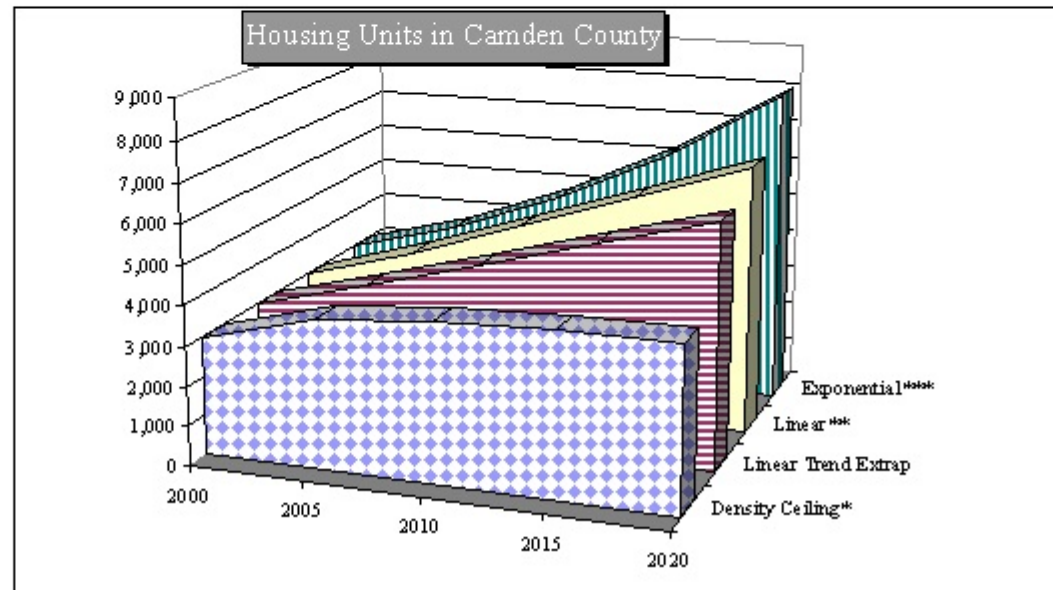
Camden County, North Carolina				Five-Year Increments					Avg Annl					
a=-.407241929	Annual	Base		2000	2001	2002	2003	2004	2005	2010	2015	2020	Increase	
b=-0.110215822	Change	Value		estimates =>					projection years (x) =>				2004-2020	
k=4,137	Equation	(c)	(d)	Method	(x0)				1	6	11	16		
	$y=k/(1+(10^{(a+b*(x-x0))}))$		3,623	Density Ceiling*	2,973	3,079	3,215	3,412	3,623	3,727	4,013	4,101	4,127	31
	$y=((c*d)^x)+d$		3,623	Linear TrendExtrap	2,973	3,079	3,215	3,412	3,623	3,750	4,567	5,383	6,200	161
		5.5%	3,623	Linear**	2,973	3,079	3,215	3,412	3,623	3,822	4,819	5,815	6,811	199
	$y=d*((1+c)^x)$	5.1%	3,623	Exponential***	2,973	3,079	3,215	3,412	3,623	3,808	4,883	6,262	8,030	275
			Annual Increase=>		106	136	197	211						

* Logistic curve based on actual increase from 2000 to 2004 and a housing capacity of 4,137 units.

This alternative approximates the population projections from the North Carolina State Demographic Unit.

** Simple growth rate alternative from 2000 to 2004.

*** Compounded growth rate based on 2000 to 2004 housing increase.



Scenario 1

Demographic & Enrollment Projections - Development Ceiling Based on North Carolina 2020 Population Projection¹

Camden County, North Carolina

	Base Year	1	2	3	4	5	6	7	8	9	10	20	Avg.	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2020	Annual	
Annual Development Data													Change	
Population ^{1,2}	6,881	7,126	7,441	7,897	8,385	8,626	8,822	8,980	9,107	9,208	9,288	9,552	73	
Housing Units ^{1,2,3}	2,973	3,079	3,215	3,412	3,623	3,727	3,811	3,880	3,935	3,978	4,013	4,127	31	
Households ⁴	2,662	2,757	2,879	3,055	3,244	3,337	3,413	3,474	3,523	3,562	3,593	3,695	28	
Res Vacancy Rate ²	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%		
Persons Per Household ²	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58		
Annual Change in Housing Units		106	136	197	211	104	85	68	55	44	34	3		
Student Generation Rate ⁵	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	Avg. Annual Change	
	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	19-20		
Public School Population														
Elementary Schools														
SFD & MH	0.22	583	603	630	669	710	730	747	760	771	780	786	809	
All Others	0.09	6	7	7	7	8	8	8	8	9	9	9	9	
Total		589	610	637	676	718	738	755	769	780	788	795	818	6
Middle School														
SFD & MH	0.13	336	348	364	386	410	421	431	439	445	450	454	467	
All Others	0.04	3	3	3	3	3	4	4	4	4	4	4	4	
Total		339	351	367	389	413	425	435	442	449	454	458	471	4
High School														
SFD & MH	0.14	357	369	386	409	435	447	457	465	472	477	481	495	
All Others	0.03	2	3	3	3	3	3	3	3	3	3	3	3	
Total		359	372	388	412	437	450	460	469	475	480	485	498	4
Grand Total (all grades)		1,287	1,333	1,392	1,477	1,568	1,613	1,650	1,680	1,703	1,722	1,737	1,787	14
Annual Change in Enrollment		46	59	85	91	45	37	30	24	19	15	1		
Actual Enrollment		1,287	1,277	1,358	1,418	1,548								
Difference - Projected vs. Actual Enrollment		0	56	34	59	20								

¹ Scenario 1 projections are derived from fitting a logistic curve on the actual housing unit increase from 2000 to 2004 (using building permit data) and a 2020 housing ceiling of 4,127 units. This ceiling approximates the 2020 population of 9,574 residents that has been projected for Camden County by the North Carolina State Data Center.

² Population, housing units, households, vacancy rate, and persons per household data for 2000 is based on U.S. Census data STF 3 Tables 31, 32, and 33.

³ Housing unit estimate for 2001, 2002, 2003, and 2004 based on building permit data provided by Camden County.

⁴ Households calculated by applying occupancy of 89.5 percent to housing unit estimate. Occupancy rate is equal to 1 minus vacancy rate.

⁵ Student generation rate based on U.S. Census Bureau, Year 2000 5% Public Use Micro data Sample for North Carolina PUMA 04800 and Virginia PUMA 03000.

Scenario 2

Demographic & Enrollment Projections - Linear Trend Extrapolation¹

Camden County, North Carolina

	Base Year	1	2	3	4	5	6	7	8	9	10	20	Avg	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2020	Annual	
Annual Development Data														
Population ^{1,2}	6,881	7,126	7,441	7,897	8,385	8,680	9,058	9,436	9,814	10,192	10,570	14,349	373	
Housing Units ^{1,2,3}	2,973	3,079	3,215	3,412	3,623	3,750	3,914	4,077	4,240	4,404	4,567	6,200	161	
Households ⁴	2,662	2,757	2,879	3,055	3,244	3,358	3,504	3,650	3,797	3,943	4,089	5,551	144	
Res Vacancy Rate ²	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%		
Persons Per Household ²	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58		
Annual Change in Housing Units		106	136	197	211	127	163	163	163	163	163	163		
Student Generation Rate ⁵													Avg Annual Change	
Public School Population		School Year 99-00	School Year 00-01	School Year 01-02	School Year 02-03	School Year 03-04	School Year 04-05	School Year 05-06	School Year 06-07	School Year 07-08	School Year 08-09	School Year 09-10	School Year 19-20	
Elementary Schools														
SFD & MH	0.22	583	603	630	669	710	735	767	799	831	863	895	1,215	32
All Others	0.09	6	7	7	7	8	8	9	9	9	10	10	13	
Total		589	610	637	676	718	743	775	808	840	872	905	1,228	
Middle School														
SFD & MH	0.13	336	348	364	386	410	424	443	461	479	498	516	701	18
All Others	0.04	3	3	3	3	3	4	4	4	4	4	4	6	
Total		339	351	367	389	413	428	446	465	483	502	521	707	
High School														
SFD & MH	0.14	357	369	386	409	435	450	469	489	509	528	548	744	19
All Others	0.03	2	3	3	3	3	3	3	3	3	4	4	5	
Total		359	372	388	412	437	453	473	492	512	532	551	749	
Grand Total (all grades)		1,287	1,333	1,392	1,477	1,568	1,623	1,694	1,765	1,836	1,906	1,977	2,684	70
Annual Change in Enrollment		46	59	85	91	55	71	71	71	71	71	71		
Actual Enrollment		1,287	1,277	1,358	1,418	1,548								
Difference - Projected vs. Actual Enrollment		0	56	34	59	20								

¹ Scenario 2 projections are derived a linear trend extrapolation using a least squares calculation based on the actual housing unit increase from 2000 to 2004 (using building permit data).² Population, housing units, households, vacancy rate, and persons per household data for 2000 is based on U.S. Census data STF 3 Tables 31, 32, and 33.³ Housing unit estimate for 2001, 2002, 2003, and 2004 based on building permit data provided by Camden County.⁴ Households calculated by applying occupancy of 89.5 percent to housing unit estimate. Occupancy rate is equal to 1 minus vacancy rate.⁵ Student generation rate based on U.S. Census Bureau, Year 2000 5% Public Use Microdata Sample for North Carolina PUMA 04800 and Virginia PUMA 03000.

Scenario 3

Demographic & Enrollment Projections - 2000-2004 Annual Growth Rate Projection¹

Camden County, North Carolina

	Base Year	1	2	3	4	5	6	7	8	9	10	20	Avg	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2020	Annual	
Annual Development Data													Change	
Population ^{1,2}	6,881	7,126	7,441	7,897	8,385	8,847	9,308	9,769	10,230	10,691	11,153	15,765	461	
Housing Units ^{1,2,3}	2,973	3,079	3,215	3,412	3,623	3,822	4,022	4,221	4,420	4,619	4,819	6,811	199	
Households ⁴	2,662	2,757	2,879	3,055	3,244	3,422	3,601	3,779	3,958	4,136	4,315	6,099	178	
Res Vacancy Rate ²	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%		
Persons Per Household ²	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58		
Annual Change in Housing Units		106	136	197	211	199	199	199	199	199	199	199		
	Student Generation Rate ⁵	School Year 99-00	School Year 00-01	School Year 01-02	School Year 02-03	School Year 03-04	School Year 04-05	School Year 05-06	School Year 06-07	School Year 07-08	School Year 08-09	School Year 09-10	School Year 19-20	Avg Annual Change
Public School Population														
Elementary Schools														
SFD & MH	0.22	583	603	630	669	710	749	788	827	866	905	944	1,335	39
All Others	0.09	6	7	7	7	8	8	9	9	10	10	10	15	
Total		589	610	637	676	718	757	797	836	876	915	955	1,349	
Middle School														
SFD & MH	0.13	336	348	364	386	410	432	455	477	500	522	545	770	23
All Others	0.04	3	3	3	3	3	4	4	4	4	4	5	7	
Total		339	351	367	389	413	436	459	481	504	527	549	777	
High School														
SFD & MH	0.14	357	369	386	409	435	458	482	506	530	554	578	817	24
All Others	0.03	2	3	3	3	3	3	3	3	4	4	4	6	
Total		359	372	388	412	437	462	486	510	534	558	582	822	
Grand Total (all grades)		1,287	1,333	1,392	1,477	1,568	1,655	1,741	1,827	1,913	2,000	2,086	2,949	86
Annual Change in Enrollment			46	59	85	91	86	86	86	86	86	86	86	
Actual Enrollment		1,287	1,277	1,358	1,418	1,548								
Difference - Projected vs. Actual Enrollm		0	56	34	59	20								

¹ Scenario 3 projections apply the 5.5 percent growth rate experienced on the actual housing unit increase from 2000 to 2004 (using building permit data).² Population, housing units, households, vacancy rate, and persons per household data for 2000 is based on U.S. Census data STF 3 Tables 31, 32, and 33.³ Housing unit estimate for 2001, 2002, 2003, and 2004 based on building permit data provided by Camden County.⁴ Households calculated by applying occupancy of 89.5 percent to housing unit estimate. Occupancy rate is equal to 1 minus vacancy rate.⁵ Student generation rate based on U.S. Census Bureau, Year 2000 5% Public Use Micro data Sample for North Carolina PUMA 04800 and Virginia PUMA 03000.

Scenario 4**Demographic & Enrollment Projections - 2000-2004 Exponential Growth Rate Projection ¹**

Camden County, North Carolina

	Base Year	1	2	3	4	5	6	7	8	9	10	20	Avg	
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2020	Annual	
Annual Development Data													Change	
Population ^{1,2}	6,881	7,126	7,441	7,897	8,385	8,813	9,263	9,735	10,231	10,753	11,302	18,585	637	
Housing Units ^{1,2,3}	2,973	3,079	3,215	3,412	3,623	3,808	4,002	4,206	4,421	4,646	4,883	8,030	275	
Households ⁴	2,662	2,757	2,879	3,055	3,244	3,409	3,583	3,766	3,958	4,160	4,372	7,190	247	
Res Vacancy Rate ²	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%	10.5%		
Persons Per Household ²	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58	2.58		
Annual Change in Housing Units		106	136	197	211	185	194	204	215	225	237	390		
Student Generation Rate ⁵	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	School Year	Avg Annual	
	99-00	00-01	01-02	02-03	03-04	04-05	05-06	06-07	07-08	08-09	09-10	19-20	Change	
Public School Population														
Elementary Schools														
SFD & MH	0.22	583	603	630	669	710	746	784	824	866	910	957	1,573	55
All Others	0.09	6	7	7	7	8	8	9	9	10	10	11	17	
Total		589	610	637	676	718	754	793	833	876	920	967	1,591	
Middle School														
SFD & MH	0.13	336	348	364	386	410	431	452	476	500	525	552	908	31
All Others	0.04	3	3	3	3	3	4	4	4	4	4	5	8	
Total		339	351	367	389	413	434	456	480	504	530	557	916	
High School														
SFD & MH	0.14	357	369	386	409	435	457	480	504	530	557	586	963	33
All Others	0.03	2	3	3	3	3	3	3	3	4	4	4	7	
Total		359	372	388	412	437	460	483	508	534	561	590	970	
Grand Total (all grades)		1,287	1,333	1,392	1,477	1,565	1,645	1,732	1,821	1,914	2,011	2,114	3,476	119
Annual Change in Enrollment			46	59	85	91	80	84	88	93	98	103	169	
Actual Enrollment		1,287	1,277	1,358	1,418	1,548								
Difference - Projected vs Actual Enrollm		0	56	34	59	20								

¹ Scenario 4 projections apply a compounded growth rate to the actual housing unit increase from 2000 to 2004 (using building permit data).² Population, housing units, households, vacancy rate, and persons per household data for 2000 is based on U.S. Census data STF3 Tables 31, 32, and 33.³ Housing unit estimate for 2001, 2002, 2003, and 2004 based on building permit data provided by Camden County.⁴ Households calculated by applying occupancy of 89.5 percent to housing unit estimate. Occupancy rate is equal to 1 minus vacancy rate.⁵ Student generation rate based on U.S. Census Bureau, Year 2000 5% Public Use Micro data Sample for North Carolina PUMA 04800 and Virginia PUMA 03000.